Early versus Delayed Arthroplasty of Proximal Humerus Fractures in Elderly Patients

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ABSTRACT

BACKGROUND: The purpose of this study is to compare the outcomes of reverse total shoulder arthroplasty (RTSA) in elderly patients with proximal humerus fractures (PHFs) who underwent early RTSA versus those who underwent delayed RTSA.

METHODS: A retrospective review was conducted of elderly patients who underwent RTSA for PHFs at an academic institution. The early RTSA cohort was defined as patients who underwent arthroplasty within 28 days of their fracture date, while the delayed RTSA cohort was defined as patients who underwent arthroplasty 28 days after their fracture date. Information regarding the operative, post-operative course, patient-reported outcomes (PROs), and range of motion (ROM) were recorded.

RESULTS: 63 patients were included in this study. Patient demographics between the early RTSA group and the delayed RTSA group were similar between age (74.2 ± 6.3 years vs. 73.6 ± 5.5 years; p = 0.57), average follow-up (606.5 ± 495.0 days vs. 740.9 ± 331.1 days; p = 0.32), and gender distribution (74.5% female vs. 56.3% female; p = 0.17). Operative duration was similar between the early group and delayed group (140.5 ± 35.7 minutes vs. 122.6 ± 32.3 minutes; p = 0.08), but the early group had longer length of stay (3.4 ± 3.0 days vs. 1.6 ± 1.6 days; p = 0.03). There was no statistically significant difference between the two groups for emergency department visits within 90 days (4.3% vs. 6.3%; p = 0.75), readmissions within 90 days (2.1% vs. 0%; p = 0.56), discharge to skilled nursing facility (25.0% vs. 33.3%; p = 0.54), and revision rate (2.1% vs. 12.5%; p = 0.20). There was no significant difference in ROM in forward flexion (129° ± 33° vs. 133° ± 29°; p = 0.64), external rotation (31° ± 22° vs. 34° ± 16°; p = 0.65), or abduction (97° ± 32° vs. 104° ± 47°; p = 0.60). PROs at final follow-up were not statistically different: patient-reported outcomes measurement information system (PROMIS) - physical function (40.1 ± 10.2 vs. 42.8 ± 11.0; p = 0.54), PROMIS - pain interference (53.7 ± 8.6 vs. 55.4 ± 8.4; p = 0.64) and post-operative VAS pain scores (1.3 ± 2.1 vs. 2.4 ± 2.6; p = 0.08).

CONCLUSION: There was no difference in PROs or ROM in patients who underwent early RTSA compared to those who underwent delayed RTSA. However, the early RTSA group had a longer length of stay in the hospital.

LEVEL OF EVIDENCE: III Retrospective comparative study

Key Terms: Proximal humerus fracture, Reverse total shoulder, Fracture, Elderly, Arthroplasty, Early, Delayed

Table IV. Patient reported outcomes

	Early RTSA	Delayed RTSA	p-value
PROMIS - Physical function	40.1 ± 10.2	42.8 ± 11.0	0.54
PROMIS - Pain interference	53.7 ± 8.6	55.4 ± 8.4	0.64
Pre-operative VAS pain score	6.1 ± 3.2	6.4 ± 1.7	0.75
Post-operative VAS pain score	1.3 ± 2.1	2.4 ± 2.6	0.08